REMARKS

This response is intended as a full and complete response to the final Office Action mailed May 14, 2008. In the Office Action, the Examiner notes that claims 1-4, 6-8, 19 and 21-34 are pending and rejected.

In view of the following discussion, Applicants submit that none of the claims now pending in the application are obvious under the provisions of 35 U.S.C. §103. Thus, Applicants believe that all of the claims are now in allowable form.

It is to be understood that Applicants do not acquiesce to the Examiner's characterizations of the art of record or to Applicants' subject matter recited in the pending claims. Further, Applicants are not acquiescing to the Examiner's statements as to the applicability of the prior art of record to the pending claims by filing the instant response.

Rejection under 35 U.S.C. §103

A. Claim 1

The Examiner has rejected claim 1 under 35 U.S.C. 103 as being unpatentable over Ueno et al. (U.S. Patent No. 6,438,596, hereinafter "Ueno") in view of DeKoning (U.S. Patent No. 6,275,898, hereinafter "DeKoning"). Applicants respectfully traverse the rejection.

In general, Ueno teaches a video on demand system that presents users with a selection list of proposed videos for which server and network resources are available to immediately serve the selection video. A service control unit determines whether server and network resources are available by sending separate queries to server and network resources management control units. (Ueno, Abstract) In particular, Ueno discloses a hierarchical system of video servers including at least one center server and at least one local server. The local servers store video sources with a high expected frequency of access. The center servers store video sources with a low expected frequency of access. (Ueno, Col. 18, Lines 6-12).

Ueno, however, fails to teach or suggest Applicants' claim 1. Namely, Ueno fails to teach or suggest a plurality of head-ends where each head-end includes a server, storage, and manager, where the manager dynamically manages storage of video assets in primary and secondary storage partitions of the head-ends. Ueno also fails to

teach or suggest that the manager, in response to an infrequently requested video asset becoming frequently requested, selects ones of the head-ends to store said frequently requested video asset and transmits the frequently requested video asset to the selected ones of the head-ends for storage in associated primary storage partitions. Ueno also fails to teach or suggest that the manager, in response to a frequently requested video asset becoming infrequently requested, selects one of the head-ends to store the infrequently requested video asset and provides the infrequently requested video asset to the selected one of the head-ends for storage in an associated secondary storage partition.

Rather, Ueno merely teaches that a center server stores videos having a low frequency in access and that local servers store videos having a high frequency in access. The storage of high frequency videos in local servers and low frequency videos in a center server, as taught in Ueno, does not teach or suggest each of a plurality of head-ends storing frequently requested videos assets and infrequently requested video assets using a storage having a primary storage partition and a secondary storage partition, as claimed in Applicant's claim 1.

As such, Ueno fails to teach or suggest at least the limitations of "each of said head-ends comprising: a server for distributing requested video assets to requesting subscriber equipment via said access network coupled between each of said plurality of head-ends and said respective subscriber equipment; a storage having a primary storage partition for storing frequently requested video assets and a secondary storage partition for storing infrequently requested video assets, said infrequently requested video assets being distributed amongst said secondary partitions of said head-ends; and a manager for managing migration of video assets, wherein said manager tracks asset request rates and threshold rates of respective video assets; wherein said manager, in response to an infrequently requested video asset becoming frequently requested, selects ones of the head-ends to store said frequently requested video asset and transmits said frequently requested video asset to said selected ones of the head-ends for storage in associated primary storage partitions; wherein said manager, in response to a frequently requested video asset becoming infrequently requested, selects one of the head-ends to store said infrequently requested video asset and provides said infrequently requested video asset to said selected one of the head-ends

for storage in an associated secondary storage partition," as claimed in Applicants' claim 1.

Furthermore, DeKoning fails to bridge the substantial gap between Ueno and Applicants' claim 1.

Applicants respectfully maintain that DeKoning is not a proper reference against the present application because Applicants' application (which was filed on November 23, 2001, and claims priority to U.S. Provisional Application No. 60/127,396, filed April 1, 1999) pre-dates DeKoning (which was filed on May 13, 1999). Therefore, since the Applicants' application predates DeKoning, Applicants maintain that DeKoning is not a proper reference against Applicants' claims.

In the Response to Arguments section of the Office Action, the Examiner asserts that Applicants' provisional application does not provide sufficient support for Applicants' independent claim 1 and, thus, that Dekoning is a proper reference against this claim. (Office Action, Pg. 2 - 3). Applicants respectfully disagree with the Examiner's assertion. However, in the interest of furthering this case the Applicants have provided herein arguments demonstrating that a combination of the teachings of Ueno and DeKoning fails to teach or suggest Applicants' claims, as a whole.

As stated hereinabove, DeKoning fails to bridge the substantial gap between Ueno and Applicants' claim 1.

In general, DeKoning discloses methods and structures for defining partitions within a RAID storage system LUN such that each partition is managed in accordance with RAID management techniques independent of the other partitions. As disclosed in DeKoning, the total data storage of the LUN is subdivided and mapped to run as a RAID level 1 mirrored storage area. As further disclosed in DeKoning, as performance and storage capacity needs as measured for each partition dictate, a partition of a LUN may be reconfigured to use a different RAID level (i.e., level 3 or 5) to reduce overhead storage needs at the cost of decreased write performance, and, further, a partition may later be returned to RAID level 1 as performance needs so indicate. (DeKoning, Abstract).

DeKoning, however, alone or in combination with Ueno, fails to teach or suggest Applicants' claim 1, as a whole. Namely, DeKoning fails to teach or suggest at least the limitations of "each of said head-ends comprising: a server...a storage...and a manager

for managing migration of video assets...wherein said manager, in response to an infrequently requested video asset becoming frequently requested, selects ones of the head-ends to store said frequently requested video asset and transmits said frequently requested video asset to said selected ones of the head-ends for storage in associated primary storage partitions; wherein said manager, in response to a frequently requested video asset becoming infrequently requested, selects one of the head-ends to store said infrequently requested video asset and provides said infrequently requested video asset to said selected one of the head-ends for storage in an associated secondary storage partition," as claimed in Applicants' claim 1.

Rather, DeKoning merely discloses management of partitions within a RAID system. Specifically, DeKoning discloses management of partitions within a RAID system such that the partitions are managed independent of each other by reconfiguring the RAID level of a partition of the RAID system based on the performance and storage capacity needs of the partition.

The reconfiguration of partitions within a RAID system, as disclosed in DeKoning, does not teach or suggest selecting ones of a plurality of head-ends on which to store a frequently requested video asset and transmitting the video asset to the selected ones of the head-ends for storage in respective primary storage partitions of the head-ends, as claimed in Applicants' claim 1.

Similarly, the reconfiguration of partitions within a RAID system, as disclosed in DeKoning, does not teach or suggest selecting one of a plurality of head-ends on which to store an infrequently requested video asset and providing the video asset to the selected head-end for storage in the secondary storage partition of the head-end, as claimed in Applicants' claim 1.

DeKoning is devoid of any teaching or suggestion of management of video assets across multiple systems, much less across multiple head-ends, as claimed in Applicants' claim 1. DeKoning is devoid of any teaching or suggestion of providing a video asset from one head-end to another head-end, as claimed in Applicants' claim 1. DeKoning does not even teach or suggest moving video assets between partitions of the RAID system. Rather, DeKoning merely discloses reconfiguring a partition within a RAID system, independent of the other partitions of the RAID system, to use a different RAID level based on performance and storage capacity needs of that partition.

In the Office Action, the Examiner cites a specific portion of DeKoning (namely, Col. 8, Line 64 – Col. 9, Line 30), asserting that the cited portion of DeKoning discloses Applicants' limitations of "wherein the manager, in response to an infrequently requested video asset becoming frequently requested, selects ones of the head-ends to store the frequently requested video asset and transmits the frequently requested video asset to the selected ones of the head-ends for storage in associated primary storage partitions" and "wherein the manager, in response to a frequently requested video asset becoming infrequently requested, selects one of the head-ends to store the infrequently requested video asset and provides the infrequently requested video asset to the selected one of the head-ends for storage in an associated secondary storage partition." Applicants respectfully disagree.

Applicants respectfully submit that the cited portion of DeKoning fails to teach or suggest selecting head-ends to store frequently or infrequently requested video assets, or providing video assets to selected head-ends for storage in primary or secondary storage partitions. Rather, the cited portion of DeKoning merely teaches a performance monitor 316 that monitors for a number of performance characteristics of each partition of the RAID system to determine whether and when a partition should be migrated to another RAID level. The migration of a partition of a RAID system from one level to another level, as disclosed in DeKoning, does not teach or suggest selecting head-ends or providing video assets to selected head-ends, as claimed in Applicants' claim 1.

Thus, for at least these reasons, Applicants respectfully submit that DeKoning fails to teach or suggest either of the limitations of "wherein the manager, in response to an infrequently requested video asset becoming frequently requested, selects ones of the head-ends to store the frequently requested video asset and transmits the frequently requested video asset to the selected ones of the head-ends for storage in associated primary storage partitions" and "wherein the manager, in response to a frequently requested video asset becoming infrequently requested, selects one of the head-ends to store the infrequently requested video asset and provides the infrequently requested video asset to the selected one of the head-ends for storage in an associated secondary storage partition," as claimed in Applicants' claim 1.

Furthermore, assuming arguendo that the teachings of Ueno and DeKoning could be operably combined, the resulting system would merely teach a system having

a plurality of head-ends where each head-end includes a RAID system having partitions. As disclosed in DeKoning, the partitions of a RAID system are managed by reconfiguring the partitions of the RAID system to raise or lower the RAID level as needed. Thus, the combination of the teachings of Ueno and DeKoning would merely result in a system in which partitions of the respective RAID systems of the head-ends are managed within each head-end, not across head-ends.

Therefore, Ueno and DeKoning, alone or in combination, fail to teach or suggest Applicants' invention, as a whole.

Thus, Applicants submit that independent claim 1 is patentable over Ueno and DeKoning under 35 U.S.C. §103.

Therefore, Applicants respectfully request that the rejections be withdrawn.

B. Claims 2-4, 6-8, 19, 21-34

The Examiner has rejected claims 2-4, 6-8, 19, 21-34 as being unpatentable over Ueno in view of DeKoning and Hokanson (U.S. Patent No. 6,094,680 A, hereinafter "Hokanson"). Applicants respectfully traverse the rejection.

Independent claims 19 and 25 recite relevant limitations similar to those recited in independent claim 1. As described hereinabove with respect to claim 1, Ueno and DeKoning, alone or in combination, fail to teach or suggest Applicants' claim 1, as a whole. As such, for at least the reasons set forth hereinabove with respect to claim 1, Applicants respectfully submit that Ueno and DeKoning, alone or in combination, also fails to teach or suggest Applicants' claims 19 and 25, as a whole.

With respect to claim 19, Ueno and DeKoning, alone or in combination, fail to teach or suggest at least the limitations of "in response to an infrequently requested video asset stored on a secondary partition becoming a frequently requested video asset, selecting ones of the head-ends to store the frequently requested video asset and migrating the video asset stored on the secondary storage partition to the selected ones of the head-ends for storage in the corresponding primary storage partitions" and "in response to a frequently requested video asset stored in a primary storage partition becoming an infrequently requested video asset, selecting one of the head-ends to store the infrequently requested video asset and migrating the video asset stored on the

primary storage partition to the selected one of the head-ends for storage in the corresponding secondary storage partition," as claimed in Applicants' claim 19.

With respect to claim 25, Ueno and DeKoning, alone or in combination, fail to teach or suggest at least the limitation of "a content manager for receiving a request for a video asset from requesting subscriber equipment and determining whether the requested video asset is stored locally in the storage of that head-end or stored remotely in the storage of a remote head-end," as claimed in Applicants' claim 25. Rather, Ueno merely discloses that a service control unit determines a server to which the video source selected by the user is to be offered. Ueno fails to teach or suggest a head-end having a content manager for receiving a request for a video asset from requesting subscriber equipment and determining whether the requested video asset is stored locally in the storage of that head-end or stored remotely in the storage of a remote head-end, as claimed in Applicants' claim 25.

As such, Ueno and DeKoning, alone or in combination, fail to teach or suggest Applicants' independent claims 1, 19, or 25, as a whole. Furthermore, claims 2-4, 6-8, 21-24 and 26-34 depend, directly or indirectly, from independent claims 1, 19, and 25 and recite additional features thereof. As such, for at least the reasons discussed above, Applicants submit that Ueno and DeKoning, alone or in combination, also fail to teach or suggest each of the dependent claims 2-4, 6-8, 21-24 and 26-34, as a whole.

Furthermore, Hokanson fails to bridge the substantial gap between Ueno and DeKoning and Applicants' claims 1, 19 and 25.

In general, Hokanson teaches a system for managing distributed resources on a network. As disclosed in Hokanson, a network manager balances allocation of network resources among network sites (for making the resources available to users) against the cost that is required to make the resources available to the users. (Hokanson, Abstract). More specifically, Hokanson discloses that a database server is configured to manage content within its own storage hierarchy according to cost/availability criteria such that content is organized at various hierarchical levels of the storage hierarchy, thereby facilitating acceptable availability of content to users.

Hokanson, however, alone or in combination with Ueno and DeKoning, fails to teach or suggest Applicants' claims 1, 19, or 25, as a whole.

Namely, with respect to claim 1, Hokanson fails to teach or suggest a manager which "in response to an infrequently requested video asset becoming frequently requested, selects ones of the head-ends to store said frequently requested video asset and transmits said frequently requested video asset to said selected ones of the head-ends for storage in associated primary storage partitions" and, further, which "in response to a frequently requested video asset becoming infrequently requested, selects one of the head-ends to store said infrequently requested video asset and provides said infrequently requested video asset to said selected one of the head-ends for storage in an associated secondary storage partition," as claimed in Applicants' claim 1.

Similarly, with respect to claim 19, Hokanson fails to teach or suggest "in response to an infrequently requested video asset stored on a secondary partition becoming a frequently requested video asset, selecting ones of the head-ends to store the frequently requested video asset and migrating the video asset stored on the secondary storage partition to the selected ones of the head-ends for storage in the corresponding primary storage partitions" and "in response to a frequently requested video asset stored in a primary storage partition becoming an infrequently requested video asset, selecting one of the head-ends to store the infrequently requested video asset and migrating the video asset stored on the primary storage partition to the selected one of the head-ends for storage in the corresponding secondary storage partition," as claimed in Applicants' claim 19.

Furthermore, Hokanson also fails to teach or suggest at least the limitation of "a content manager for receiving a request for a video asset from requesting subscriber equipment and determining whether the requested video asset is stored locally in the storage of that head-end or stored remotely in the storage of a remote head-end," as claimed in Applicants' claim 25.

Rather, Hokanson merely teaches a database server that is configured to manage content within its own storage hierarchy using cost/availability criteria. As noted by Applicants' in the previous responses, Hokanson teaches that an individual server would migrate video assets between its own storage partitions. Specifically, the cited portion of Hokanson states, in part, that "[a]s certain video content is requested more regularly in comparison to [other] content, the highly requested content might be

moved to higher hierarchical level (e.g., higher performing device, or replicated) while the less requested content might be moved to lower hierarchical level (e.g., lower performing device, or removal of any additional copies) if the cost/availability criteria indicates that the system will run more effectively for user demand without increasing costs." (Hokanson, Col. 3, Lines 22-31).

In other words, the cited portion of Hokanson merely teaches movement of content between hierarchical levels within a database server. Specifically, the cited portion of Hokanson states that movement to a higher hierarchical level may include moving the content to a higher performing device of the database server or by adding additional copies of the content at the database server, and, similarly, movement to a lower hierarchical level may include moving the content to a lower performing device of the database server or by removing additional copies of the content at the database server. The movement of content between hierarchical levels within a content server, as taught in Hokanson, does not teach or suggest selection by a head-end of one or more head-ends on which content is to be stored in response to the content changing between frequently requested and infrequently requested, as claimed in Applicants' claim 1.

Furthermore, although Hokanson discloses a public network system (20) having multiple network cites (24, 26, and 28) where each network cite has a server (30, 34, and 38) and associated storage (32, 36, and 40), and states that the network manager for public network system 20 may be distributed across the respective servers of the network cites, Hokanson fails to teach or suggest the specific distributed, dynamic video asset management claimed in Applicants' claims 1, 19, or 25. Rather, Hokanson merely states that "...each network manager module balances its own resources for that local network cite...effectively load balanc[ing] the entire network system." (Hokanson, Col. 5, Lines 48-50, Emphasis added).

More specifically, with respect to Figure 3 of Hokanson, Hokanson discloses that a database server has an associated cost/availability balance that is tailored for that network cite, requests for content are monitored at the network cites in order to identify patterns, assessing costs and availability of supplying content to users, and determining whether to leave the collection of content stored at a particular cite unchanged or to change the collection of content at the cite based on a cost availability assessment. In

other words, as taught in Hokanson, each database server determines whether or not to change its own collection of content. Hokanson is devoid of any teaching or suggestion of one database server selecting one or more of the other database servers to which content is to be transferred.

As such, a database server determining whether or not to leave the collection of content stored in its own storage unchanged, as taught in Hokanson, does not teach or suggest a manager of a head-end that selects one or more other head-ends to which to transfer a video asset, much less that, in response to an infrequently requested video asset becoming frequently requested, a manager at a head-end selects ones of the other head-ends in the network to store the frequently requested video asset and transmits the frequently requested video asset to the selected ones of the head-ends for storage in associated primary storage partitions, or, in response to a frequently requested video asset becoming infrequently requested, a manager at a head-end selects one of the head-ends to store the infrequently requested video asset and provides the infrequently requested video asset to the selected one of the head-ends for storage in an associated secondary storage partition, as claimed in Applicants' claim 1.

As such, for at least these reasons, Applicants respectfully submit that Hokanson also fails to teach or suggest "in response to an infrequently requested video asset stored on a secondary partition becoming a frequently requested video asset, selecting ones of the head-ends to store the frequently requested video asset and migrating the video asset stored on the secondary storage partition to the selected ones of the head-ends for storage in the corresponding primary storage partitions" and "in response to a frequently requested video asset stored in a primary storage partition becoming an infrequently requested video asset, selecting one of the head-ends to store the infrequently requested video asset and migrating the video asset stored on the primary storage partition to the selected one of the head-ends for storage in the corresponding secondary storage partition," as claimed in Applicants' claim 19 or "a content manager for receiving a request for a video asset from requesting subscriber equipment and determining whether the requested video asset is stored locally in the storage of that head-end or stored remotely in the storage of a remote head-end," as claimed in Applicants' claim 25.

Therefore, Ueno, DeKoning, and Hokanson, alone or in combination, fail to teach or suggest Applicants' invention of claims 1, 19 or 25, as a whole.

As such, Applicants submit that independent claims 1, 19 and 25 are not obvious and fully satisfy the requirements of 35 U.S.C. §103 and are patentable thereunder. Furthermore, claims 2-4, 6-8, 21-24 and 26-34 depend, either directly or indirectly, from independent claims 1, 19 and 25, and recite similar features thereof. As such, and at least for the same reasons as discussed above, Applicants submit that claims 2-4, 6-8, 21-24 and 26-34 are also not obvious and fully satisfy the requirements of 35 U.S.C. §103 and are patentable thereunder.

Therefore, Applicants respectfully request that the rejections be withdrawn.

CONCLUSION

Thus, Applicants submit that none of the claims, presently in the application, is anticipated or obvious under the provisions of 35 U.S.C. §103. Accordingly, both reconsideration of this application and its swift passage to issue are earnestly solicited.

If, however, the Examiner believes that there are any unresolved issues requiring adverse final action in any of the claims now pending in the application, it is requested that the Examiner telephone Eamon J. Wall, Esq. at (732) 530-9404 so that appropriate arrangements can be made for resolving such issues as expeditiously as possible.

Respectfully submitted,

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